DOCUMENT RESUME

ED 153 593 HE 009 928

AUTHOR Stedman, James
TITLE Future Higher Education Enrollments: An Analysis of Enrollment Projections.
INSTITUTION Library of Congress, Washington, D.C. Congressional Research Service.
PUB DATE Jan 78
NOTE 34p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Declining Enrollment; *Enrollment; *Enrollment Projections; Enrollment Rate; *Enrollment Trends; Factor Analysis; Graduate Students; *Higher Education; Professional Education; *Trend Analysis; Undergraduate Students

ABSTRACT

Three demographically-based enrollment projections are analyzed in this paper. The first set of projections was prepared by the National Center of Education Statistics (NCES), the second set was estimated by the Carnegie Council on Policy Studies in Higher Education, and the third set is the work of Allan Carter. NCES projections cover the 10-year period of 1975 to 1985. NCES projects that total enrollment will grow by 22.0 percent from 1975 to 1983, when it peaks. By 1985 enrollments are projected to have dropped 2.1 percent from their 1983 peak. The Carnegie estimates of headcount, degree-credit enrollments by level and type show the same general pattern of slowing growth, decline, and recovery depicted by NCES projections. The headcount enrollment is projected to grow 2.8 percent between 1980 and 1985, fall 4.1 percent from its 1985 level by 1990, and grow during the last decade of the century by 6.3 percent. Carter projected that undergraduate enrollment will increase until 1982 at which time it will enter a decline, shrinking 7.2 percent by 1990 and continuing to decline through 1993 with relatively steady recovery for the rest of the decade. Graduate and first- professional enrollment is not predicted to suffer losses until 1987, with graduate enrollment shrinking 7.0 percent and first-professional contracting 5.1 percent between 1987 and 1990. (SPG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED153593

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

HE 019 928

CRS

78-4 ED

FUTURE HIGHER EDUCATION ENROLLMENTS: AN ANALYSIS OF ENROLLMENT PROJECTIONS

JAMES STEDMAN
Analyst in Education
Education and Public Welfare Division

January 4, 1978

CONGRESSIONAL RESEARCH SERVICE
LIBRARY OF CONGRESS

CRS

The Congressional Research Service works exclusively for the Congress, conducting research, analyzing legislation, and providing information at the request of Committees, Members and their staffs.

The Service makes such research available, without partisan bias, in many forms including studies, reports, compilations, digests, and background briefings. Upon request, the CRS assists Committees in analyzing legislative proposals and issues, and in assessing the possible effects of these proposals and their alternatives. The Service's senior specialists and subject analysts are also available for personal consultations in their respective fields of expertise

TABLE OF CONTENTS

	Page
Abstract	i
Introduction	1
Projections	3
Impact of Projections on Institutional Planning and Public Policymaking	20
Conclusion	29

ABSTRACT

The dependence of higher education institutions on enrolled students for their financial well-being makes the projection of future enrollment levels a significant concern for institutional planners and public policymakers. Projections have attracted attention recently because it is estimated that the 18-21 year old age cohort will decline in size during the next decade; and it is upon this cohort that higher education primarily depends.

In the following paper, demographically-based higher education enrollment projections are assessed through an analysis of three such projections. Although the methodologies and the projected levels of enrollment are found to vary, these projections describe significant changes in the size and composition of future enrollment.

What these projections may mean to institutional planners is discussed. The ability to recruit students, the needs of new students, the state of institutional finances, and the viability of institutional missions are all issues which may face institutional planners as a result of enrollment changes.

Some of the issues suggested by these projections for public policymakers, particularly those at the Federal level, are delineated as well. Public policymakers may find themselves weighing the positive and negative effects of allowing the higher education system to adjust to enrollment changes on its own. Nevertheless, pressure may mount for policymakers to modify existing programs or establish new programs to provide financial support to institutions and/or provide financial assistance to new types of students. Questions concerning the admissions and administrative processes of colleges also may be addressed at the public policy level. Equal education opportunity is focused upon in this paper because it is central to the Federal involvement in higher education and could be significantly affected by future enrollment changes.

INTRODUCTION

There is a demographic reality which is generating concern within the higher education community about future enrollment levels -- the 18 to 21 year old age cohort upon which higher education in the past has built the foundation of its student body will begin to shrink significantly in the 1980s. Between 1980 and 1990, this age group will lose over 2.6 million individuals, a decline of 15.3 percent.[1/] We know this will happen because the individuals who will be members of that cohort in 1990 have already been born.

These figures are alarming to many because higher education in this country is essentially enrollment-driven and individuals in the 18-21 year old group are the ones most likely to enroll (in 1975, 48 percent of the total enrollment in higher education came from this group; and 64 percent of the full-time undergraduates were members of this cohort).[2/] The number and characteristics of individuals who enroll in higher education institutions dictate, to a large degree, the financial health and prospects of the academic enterprise. Consider that public institutions depend on their students for about one-fifth of the funds spent for their education and that private

---

1/ Bureau of the Census. Estimates of the Population of the United States by Age, Sex and Race: July, 1974 to 1976. Current Population Reports. Series P-25. No. 643. January 1977; Bureau of the Census. Projections of the Population of the United States: 1977 to 2050. Current Population Reports. Series P-25. No. 704. July 1977.

2/ Bureau of the Census. School Enrollment -- Social and Economic Characteristics of Students: October 1975. Current Population Reports. Series P-20. No. 303. December 1976.

institutions are even more dependent, nearly two-thirds of their education expenditures are derived from students.[3/] The enrollment status of students has a bearing on institutional revenue and demands placed on the academic and administrative structures of institutions. The part-time student, for example, provides less revenue on a per capita basis to an institution than does the typical full-time student. But, in addition, the part-time student may seek academic training and services which differ from those sought by a full time student. Other characteristics, such as the age of the student, may affect his or her impact on institutions.

As a result of this dependence on enrollments, projections of future enrollment are of particular interest to higher education analysts and policymakers. They are concerned with the projected changes in the levels and the composition of future enrollments.

What trends are currently anticipated for future higher education enrollments? What impact might the expected changes in the 18-21 year old cohort have on higher education enrollments? Is there a consensus within the higher education community on the effects of these demographic changes? What are the issues which may arise for institutional planners and policymakers, particularly those at the Federal level? We will address those questions in this paper, primarily through an analysis of three demographically-based enrollment projections (ones which use demographic trends as their starting point).

3/ The National Center for Education Statistics. Digest of Education Statistics. 1976 edition, pp. 138.

PROJECTIONS

At the outset it should be noted that strict comparison of these projections is particularly difficult because (1) they do not necessarily cover the same period of time; (2) they do not use the same data; and (3) they do not measure the changes in the same enrollment population. Although we provide tables with some of the absolute numbers generated by the projections, we would argue that only the trends described by these numbers should be directly compared and, then, only if care is taken to assess the assumptions used and the type of enrollment being measured.

Our first set of projections was prepared by the National Center for Education Statistics (NCES), of the Department of Health, Education and Welfare.[4/] The second set of projections was estimated by the Carnegie Council on Policy Studies in Higher Education.[5/] Our third set is the work of the late Allan Cartter.[6/] For a general overview of all three of these projections and several others, see Carol Herrnstadt Shulman's Enrollment Trends in Higher Education.[7/]

The National Center's projections cover a ten year period into the future. We must note that NCES issues new projections every year and

---

4/ National Center for Education Statistics. Projections of Education Statistics to 1985-86. 1977.

5/ The Carnegie Foundation for the Advancement of Teaching. More Than Survival: Prospects for Higher Education in a Period of Uncertainty. 1975.

6/ Allan Cartter. Ph.D.'s and the Academic Labor Market. The Carnegie Commission on Higher Education. 1976.

7/ Carol Herrnstadt Shulman. Enrollment Trends in Higher Education. ERIC/Higher Education Research Report No. 6. 1976. The NCES projection discussed in Shulman's work was calculated a year earlier than the one analyzed in this paper.

that the assumptions and techniques have varied from year to year. We limited this analysis to the projections issued in Projections of Education Statistics to 1985-86 (published in 1977).[8/]

The key to the NCES enrollment projections under discussion is the assumption that "the 1974 percentage that full-time undergraduate and unclassified enrollment was of the population aged 18-21 years will follow the 1965-to-1975 trend through 1985."[9/] All other calculations necessary to estimate the yearly total enrollment are derived from this assumption (except those for non-degree-credit enrollment which depend on the assumption that full-time, non-degree-credit enrollment as a percentage of the population 18-21 will follow the 1965-to-1975 trend to 1985.)[10/]

The succeeding steps followed by NCES to project total higher education enrollment show how central the assumption described above is. The distribution of full-time undergraduate and unclassified enrollment among

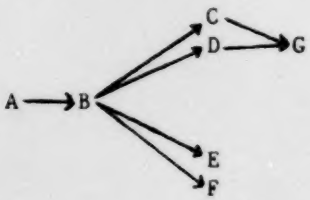
---

8/ See footnote 10 below for a discussion of changes in methodology for the set of projections currently being prepared by NCES.

9/ NCES. Projections, p. 21.

10/ For its volume Projections of Education Statistics to 1986-87, NCES will use more age-specific enrollment data. That is, rather than tie its projections to the size of the 18-21 age cohort and its ratio to full-time undergraduate and unclassified enrollment, NCES is projecting enrollment rates for several specific age groups -- for each of the nine single-year cohorts for ages 16 to 24; for the age cohort 25-29; for the cohort 30-35; and for the cohort above 35 years of age. Three sets of projections are being prepared. The lowest projection (that is, the one which projects the lowest enrollment levels) will be calculated using constant enrollment rates based on the average of the 1975 and 1976 enrollment rates; the highest will be based on trends established over the past ten years; and the middle projections will be based on an average of the high and low.

the different types of institutions (four-year public and private, two-year public and private) is projected by assuming that the percentage of full-time undergraduate and unclassified enrollment in each type of institution will follow its 1968-to-1975 trend through 1985. Part-time undergraduate and unclassified enrollment, in turn, is calculated on the assumption that, for each type of institution, the percentage that full-time undergraduate and unclassified enrollment is of total undergraduate and unclassified enrollment will follow its 1968-to-1975 trend to 1985. Full-time graduate enrollment is projected by assuming that the percentage that full-time graduate enrollment is of full-time undergraduate and unclassified enrollment in four-year institutions will continue its 1968-to-1975 trend through 1985. All other calculations follow a similar pattern of building on numbers derived from the original estimate of full-time undergraduate and unclassified enrollment. The diagram below depicts the way full-time graduate enrollment is derived from the initial, key assumption.



A = 18 to 21 year olds
B = full-time undergraduate and unclassified enrollment
C = full-time four-year public enrollment
D = full-time four-year private enrollment
E = full-time two-year public enrollment
F = full-time two-year private enrollment
G = full-time graduate enrollment

The enrollment levels projected by this method are presented below. We should note that the designation "first-professional" refers to programs leading to degrees in law (LL.B. or J.D.); dentistry (D.D.S. or D.M.D.); medicine (M.D.); veterinary medicine (D.V.M.); chiropody or podiatry (D.S.C. or D.P.); optometry (O.D.); osteopathy (D.O.); and theology (B.D.). The designation "graduate" refers to programs leading to master and doctorate

degrees excluding the first-professional degrees listed above.[11/]

TABLE I*

Enrollment in Institutions of Higher Education

Year (Fall) (1)	Total Enrollment (2)	Degree-Credit Enrollment: Graduate (4-year) (3)	Degree-Credit Enrollment: Undergraduate & first-professional (4)	Degree-Credit Enrollment: FTE (5)
1970	8,580,887	1,031,000	6,889,000	6,299,000
1975	11,184,859	1,263,000	8,468,000	7,495,000
1980	13,214,000	1,468,000	9,674,000	8,294,000
1985	13,360,000	1,456,000	9,544,000	7,960,000
Peak	13,643,000 (1983)	1,500,000 (1982)	9,869,000 (1982)	8,363,000 (1982)

Source: NCES. Projections. 1977. Tables 6, 9 and 10.

*Columns (2), (3), and (4) are headcounts. Column (5) is full-time equivalent (FTE) enrollment for which each part-time student is counted as a portion of a full-time student.

11/ NCES also prepared high and low alternative projections of total enrollment. These alternatives are based on different assumptions of enrollment patterns for men and women. The high alternative assumes, in part, a reversal of the downward undergraduate and unclassified degree-credit enrollment rate of the male population 18-21. The low estimate assumes, in part, that the relationship of female full-time undergraduate and unclassified degree-credit enrollment to the female population 18-21 years old will remain at its 1975 level until 1985. The following tables show these alternative projections for 1970, 1975, 1980 and 1985 and for the year in which enrollments will peak.

TABLE A: Enrollments in Institutions of Higher Education

Year (Fall)	High Alternative Total Enrollment	Low Alternative Total Enrollment
1970	8,581,000	8,581,000
1975	11,185,000	11,185,000
1980	13,833,000	12,060,000
1985	14,723,000	11,237,000
Peak	14,765,000 (1984)	12,107,000 (1981)

Source: NCES. Projections. 1977. Table B-5.

NCES projects that total enrollment will grow by 22.0 percent from 1975 until 1983 when it peaks. By 1985, enrollments are projected to have dropped 2.1 percent from their 1983 peak. Degree-credit, full-time equivalent (FTE) will grow 11.6 percent from its 1975 level until it peaks in 1982, only to shrink 4.8 percent from that point by 1985. (NCES calculates FTE enrollment by counting each part-time student as a percentage of a full-time student.) 12/

More Than Survival, a commentary with recommendations of the Carnegie Foundation for the Advancement of Teaching, presents a second set of projections prepared by the Carnegie Council on Policy Studies in Higher Education. The methodology used to derive the projections is described as follows:

> The total population was divided into smaller segments based on age and sex. Enrollment rates were determined for each specific subset of the civilian population. The proportion of each subset enrolled in college increased substantially during the 1950s and 1960s for all age and sex components. We assume that the increases in enrollment rates of older adults and women will continue. We assume, further, that the effects on the enrollment behavior of young males of the ending of the draft have been spent. We assume that from the mid-1970s on, their enrollment rates will conform more closely to their long-range trend. College enrollments by age and sex are calculated for each year by multiplying the appropriate enrollment rate by the projected civilian population for that year. 13/

12/ Preliminary NCES projections through 1986-87 using the methodology described in footnote 10 apparently show a different picture of future enrollments. In terms of total enrollment, NCES' medium and high projections may substantially erase the 1980's decline projected earlier, due, in part to projected increases in part-time enrollment.

13/ Carnegie. More Than Survival, p. 148.

TABLE II

Year	HEADCOUNT DEGREE-CREDIT ENROLLMENT				FTE ENROLLMENT (DEGREE-CREDIT & NON-DEGREE CREDIT)
	Total	Under-graduate	Graduate	First Professional	Total
1970	7,920,000	6,850,000	900,000	170,000	N.A.
1980	9,739,000	8,431,000	1,050,000	258,000	8,865,000
1985	10,008,000	8,565,000	1,148,000	295,000	9,345,000
1990*	9,598,000	8,239,000	1,072,000	287,000	9,100,000
1995*	10,025,000	8,606,000	1,120,000	299,000	9,378,000
2000*	10,692,000	9,199,000	1,182,000	311,000	9,673,000

*Based on Series F population projections of the Census Bureau which assume a fertility rate of 1.8 children per woman of child-bearing age.

Source: Carnegie. More than Survival. Table 5 and Footnote 1 on page 53.

The Carnegie estimates of headcount, degree-credit enrollments by level and type show the same general pattern of slowing growth, decline and recovery depicted by the NCES projections. The headcount enrollment is projected to grow 2.8 percent between 1980 and 1985, fall 4.1 percent from its 1985 level by 1990, and grow during the last decade of the century by 6.3 percent. However, Carnegie projects that the decline will occur in the second half of the next decade rather than during the first half. This difference is likely due to the dependence of the NCES projections on the size of the 18-21 cohort which begins its decline in 1981. By projecting enrollment for various age groups, the Carnegie Council apparently discounts the effects of the 18-21 decline for

the first half of the 1980s. Carnegie's FTE projections for 1980-1990 reveal less of a slow down and decline than do headcount projections (a decline of 2.6 percent between 1985 and 1990 versus one of 4.1 percent), presumably because part-time enrollment is projected to grow during the decade.

Finally, we should note that the Carnegie projections presented here for 1990 and beyond depend on a fertility rate of 1.8 children per woman of child-bearing age. Although that rate appeared to the Carnegie analysts as the most reasonable one at the time they made their projections, current Census Bureau estimates suggest a fertility rate of 2.1 as a reasonable choice. Carnegie projections using a 2.1 rate result in enrollment levels higher than those calculated with a 1.8 rate (approximately 0.8 percent higher in 1990; 1.7 percent higher in 1995; and 7.9 percent higher in 2000). The general trend of the 1990s remains the same although the degree of growth is greater using a 2.1 fertility rate.

To this stage, we have considered two sets of projections which do not depend to any degree on the labor market for college-educated individuals. In that sense both are purely demographic. However, our third set, that of Alan Cartter, is only in part demographically-based.

14/ The Carnegie methodology paralle's that used for the preliminary NCES projections described in footnote 10. An important distinction between the two is that Carnegie assumes that enrollment growth for older individuals will not be sufficient to negate declines for other age groups, despite the fact that their enrollment rate has been increasing significantly. The rate of increase is not projected by Carnegie to continue its sharp growth; in contrast, NCES for its high projection allows this rate of growth to continue longer.

Changes in the academic demand for Ph.D.'s resulting from undergraduate enrollment shifts are assumed by Cartter to have an impact on graduate and professional enrollments.

Cartter, who at the time he made these projections was Professor of Education and Economics at the University of California, Los Angeles, had a seminal influence on higher education enrollment and demand projections. Before his death, he contributed to the current debate on future enrollment levels through his study entitled Ph.D.'s and the Academic Labor Market. At the heart of this effort is an assumed link between enrollment and teacher demand.

> The academic demand for college teachers has many of the same characteristics that one finds in the demand for investment goods in the economy as a whole. It is largely a 'derived demand,' depending on the rate of change in the total number of students attending college. 15/

Cartter first projects undergraduate, graduate and professional enrollments relying on demographic trends. He then modifies his graduate and professional enrollment by incorporating in his projections responses to anticipated changes in the academic labor market for graduate degree holders.

The key age and enrollment groups for undergraduate projection are (1) 18 year olds; (2) high school graduates; and (3) first-time, degree-credit college students. By projecting trends for the ratio of 18 year olds to high school graduates and the ratio of high school graduates to first-time, degree-credit enrollment, Cartter is able to project first-time, degree-credi

---

15/ Cartter. Ph.D.'s, p. 2.

enrollment through the year 2000, assuming that a fertility rate of 1.8 will apply during this period. (As discussed earlier in the section on the Carnegie projections, a rate of 2.1 is now cited by the Census Bureau as reasonable. Using the higher rate would result in higher projections for the 1990-2000 period, but would not affect the general trends described.) Cartter converts total first-time enrollment to FTE, first-time enrollment by projecting what the part-time share of first-time enrollment will be in each year to 2000. (Each part-time student is counted as one-third of a full-time student.) A trend relating FTE, first-time enrollment to total FTE, undergraduate enrollment is established using historical data and applied to the projected FTE, first-time enrollments. This calculation yields an FTE undergraduate enrollment projection.

To project graduate and first-professional enrollment, Cartter relies on the relatively consistent trends he found which relate college graduation, entrance to graduate study, and graduate degree completion. First-year graduate enrollment is projected to the year 2000 by projecting the annual ratio of first-year graduate enrollment to B.A.'s awarded.[16/] Graduate enrollment is projected from first-year graduate enrollment by establishing a trend for

---

16/ To project B.A.'s awarded, Cartter presumably established a ratio relating undergraduate enrollment to B.A.'s awarded. The number of B.A.'s is weighted to take into account those students who may be one or more years out of undergraduate school before they enroll for graduate study. The projected ratios between first-year enrollment and weighted B.A.'s are adjusted downward between 1978 and 1982 to reflect projected decreases in college enrollments. It is unclear precisely how Cartter determined the extent of this adjustment. But, therefore, even for these first graduate projections Cartter makes allowances for possible changes in the academic demand for graduate degree holders.

the ratio between the two sets of numbers. The same basic method is used to project first-professional enrollment.

TABLE III

Full-Time Equivalent Degree-Credit Enrollment

Year	Undergraduate	First Professional	Graduate	Total
1970	5,586,000	163,000	553,000	6,302,000
1975	6,037,000	233,000	639,000	6,909,000
1980	6,880,000	243,000	642,000	7,765,000
1985	6,642,000	284,000	697,000	7,623,000
1990*	6,490,000	277,000	651,000	7,418,000
1995*	6,061,000	N.A.	N.A.	N.A.
2000*	6,696,000	N.A.	N.A.	N.A.
Peak	6,993,000 (1982)	292,000 (1987)	703,000 (1984)	7,906,000 (1982)

*Based on Series F population projections of the Census Bureau which assumes a fertility rate of 1.8 children per woman of child-bearing age.

Source: Cartter. Ph.D.'s. Tables 4-15 and 5-8.

Undergraduate FTE is projected by Cartter to grow until 1982 at which time it will enter a decline, shrinking 7.2 percent from its 1982 level by 1990. A brief recovery in 1988 and 1989 is reversed once again by 1990. The 1990s will witness more decline through 1993 with relatively steady recovery following for the rest of the decade. Graduate and first-professional enrollment will not suffer losses during the early 1980s and in fact may enjoy some growth. The year 1987 will mark the beginning of sustained enrollment decline for these two sectors -- graduate enrollment shrinking by 7.0 percent between 1987 and 1990; and first-professional contracting 5.1 percent in that same period.

For a second set of graduate and first-professional enrollment projections, Cartter adjusts enrollments in response to projected changes in the research and development demand for scientists (based on the amount of research and development spending nationally per graduate student), and changes in the number of new junior academic positions (based on death, retirement and job-change rates).[17/] First-year graduate enrollments projected by this method follow a different course from those projected earlier. To 1979, the market-responsive projection posits growth, while the demographically-based projection describes a decline and plateau through 1980. It is important to note that Cartter's demographic projection of first-year graduate enrollment depends on the ratio between B.A.'s and first-year enrollment. That ratio is projected to decline during the 1970's while the number of B.A.'s grows slowly. The labor market-responsive projection cited here adds new variables and may, thereby, reduce the net effect of the B.A./first-year graduate ratio decline. Cartter also observes that poor job prospects for B.A.'s may well work to increase graduate enrollments as students seek to gain an advantage in the job market. These two sets of projections reverse order in the early 1980's -- enrollment grows in the demographic projection, while it declines in the market-responsive projection. In the latter projection, as the gap between newly awarded Ph.D.'s and the demand for teachers grows signigicantly larger during this period, enrollments in graduate schools must

---

17/ Cartter's main purpose in preparing this study was not simply to project enrollment, but to project demand for Ph.D.'s. As a result, he does not present his revised figures for graduate and first-professional enrollment, although some graphs are provided.

respond by contracting. The demographic projection does not adjust enrollment levels as that gap increases. By about 1987, both projections begin a relatively steep decline.

The following table compares the three sets of projections discussed in this section on projections. Each set of projections anticipates changes in enrollment growth rates. Each anticipates decline in the 1980s because of shrinkage in the age pool upon which higher education has traditionally relied.

TABLE IV

Projections of Percentage Change in Total Full-Time Equivalent Enrollment and the 18-21 Year Old Age Group

	18-21 Year Old Age Group	a/ NCES	b/ Carnegie	c/ Cartter
1975-1980	+3.9	+10.7	N.A.	+12.4
1980-1985	-9.8	-4.0	+5.4	-1.8
1985-1990	-6.1	N.A.	-2.6	-2.7

a/ FTE degree-credit enrollment.
b/ FTE enrollment (includes non-degree credit enrollment).
c/ FTE degree-credit enrollment (demographically-based projection).

Sources: Bureau of the Census. Estimates of the Population. January 1977; Bureau of the Census. Projections of the Population. July 1977; NCES. Projections. 1977; Carnegie. More than Survival; Cartter. Ph.D.'s.

TABLE V

Basic Methodological Assumptions of these Enrollment Projections

NCES:	1) Higher education enrollments are projected from changes in the size of the 18-21 year old group.
	2) The number of full-time undergraduates is tied to the size of the 18-21 year old group. All other enrollment components are projected based on that link.
	3) The job market has no influence on enrollment levels.
CARNEGIE:	1) Higher education enrollments are projected from changes in the size of many different population groups.
	2) Previous enrollment rates for these population groups are calculated and projected into the future.
	3) The job market has no influence on enrollment levels.
CARTTER:	1) Higher education enrollments are initially projected from changes in the size of the 18 year old population.
	2) The number of first-time undergraduate students is tied to the size of the 18 year old cohort and its high school completion rate. All other enrollment components are projected based on that link. (This does not apply to graduate and first-professional enrollment in Cartter's market-responsive projections.)
	3) The academic job market affects graduate and professional enrollment.

The three projections described above present us with interesting variations in methodology. (See Table V above.) It appears that one's understanding or lack of understanding about why individuals enroll in higher education will influence the data and methodologies used to project future enrollments. The NCES projections are based solely on the size of the 18-21 age group. They do not rely on an assumption of why people enroll; rather they assume

that enrollment levels in the past have had some identifiable relationship to the size of a particular age group and that that relationship will continue into the future. Although the Carnegie projections consider the 18-21 age group as only one of several demographic groups which dictate enrollment levels, these projections also make no attempt to determine why people enroll. The Cartter projections, in contrast, are dependent only in part on statistical links between a particular age group and enrollment levels. They incorporate an interpretation of what influences graduate and professional enrollments by considering enrollment responses at those levels to a declining academic job market for new Ph.D.'s.

Other analysts have moved further than Cartter from a reliance on demographic relationships to enrollment levels; and as a result some of them even estimate that the 18-21 year old population decline in the 1980s is insignificant The impact of the decline in the size of any particular age cohort can be subordinated in these projections to the influence of other factors, such as the state of the total labor market for college-educated individuals, or the capacity of the higher education community to expand and take on new roles and provide new services. Consider for example the projections of Stephen Dresch (at the time of these projections he was Director of Research in the Economics of Higher Education at Yale University), or those derived from certain assumptions of Larry Leslie and Howard Miller (senior research associate and research

associate, respectively, at the Center for the Study of Higher Education when these projections were made). 18/

Dresch evinces little patience for projections based on demographic trends because,

> they explicitly ignore (a) the capacity of the broader system (economy) to absorb the college educated... and (b) the effect on the overall supply of highly educated labor of the rapid growth since the late 1950s of both the college-age population and the rate of college attendance. 19/

He constructed a model to project how the population will adapt its level of attained education to the demand for college-educated labor. The critical assumption in his model is that, year-by-year, the population cohort that is 24 years old will have certain educational characteristics because of the wage differentials (based on educational attainment) observed by that cohort between the ages of 17 and 24.

Having derived these projected educational attainment levels for the 24 year old cohort, Dresch estimates how those individuals influenced undergraduate enrollment levels three to six years in the past, when they were undergraduates. He concludes that the period between 1975 and 1980 will witness "virtual stability." But in the 1980s enrollments will plummet by 40 percent. The decline will abate somewhat in the last decade

---

18/ Stephen P. Dresch. Educational Saturation: A Demographic-Economic Model. AAUP Bulletin. Autumn 1975; Larry L. Leslie and Howard F. Miller, Jr. Higher Education and the Steady State. ERIC/ Higher Education Research Report No. 4. 1974.

19/ Dresch. Educational Saturation, pp. 239-240.

of the century; but the total enrollment decline over the thirty years between 1970 and 2000 will be 33 percent.

Clearly Dresch's projections depend on the validity of the assumption that a link between educational attainment and the labor market demand for college-educated labor dictates enrollment levels. Dresch assumes that there is a specific wage differential (between college-educated and non-college-educated labor) above which the college-educated percentage of the 24 year old cohort will increase and below which it will decrease. In essence, Dresch is asserting that individuals enroll in college when they believe they will make more money than they would if they did not enroll. We should note that the literature on what may affect enrollment levels and rates basically describes a complex mesh of factors, in which the monetary value of a higher education figures as only one element. Tuition charges and family background are among the other elements.

Larry Leslie and Howard Miller, on the other hand, assume that higher education grows in relation to the economy; and that growth in both systems "is inevitable in a rising nation" such as the United States.[20/] The leveling of higher education enrollment growth rates in the 1970s, according to this tnesis, represents only a fluctuation to which the academic enterprise will respond. The long-range picture of sustained growth painted by Leslie and Miller is strikingly at odds with Dresch's, and somewhat more optimistic than the demographically-based projections delineated

---

20/ Leslie. Higher Education, p. 47.

earlier. Unlike Dresch, Leslie and Miller believe that higher education has a strong record of adapting to new demands and will be able to continue adapting.

From our analysis of demographically-based enrollment projections it is evident that, as a result of uncertainty about what influences the size and composition of college enrollments. there is a lack of consensus among projectors and within the higher education community in general on the future dimensions of college enrollment.

It appears that the number of students enrolled in higher education is likely to change in the next two decades, possibly with some rapidity. The characteristics of students enrolled in higher education is also likely to change. The demographic data presented earlier reveals that the size of the general pool from which higher education institutions have traditionally drawn their students is estimated to decline during the 1980s and 1990s. Thus, unless an institution can increase its share of the 18-21 year old pool in step with the pool's decline in size, its student body in the 1980s and 1990s will probably have different characteristics from those of today. Neither the change in size or mix is an entirely new phenomenon for higher education. What may be new is the degree of the change and its direction. 21/

21/ Carnegie. More than Survival, pp. 2, 36-38, 133.

IMPACT OF PROJECTIONS ON INSTITUTIONAL PLANNING AND PUBLIC POLICYMAKING

These projections contain signals for planners within the education institutions and for policymakers within all levels of government. It is not clear precisely what these signals might be, who might receive them, and how decision-makers might act. In this section we have attempted, albeit tentatively, to identify some of the concerns which might affect institutional and higher education public policies in the future.

Planners within the enterprise must be prepared to deal with possibly sudden fluctuations in enrollment size and characteristics. The argument that the higher education system as a whole has undergone change before and survived (such as in the period between 1948 and 1952 when total degree-credit enrollment declined by 11 percent) is little solace to an individual institution which finds itself unable to adjust to these enrollment changes.[22/]

Institutions should not expect to encounter precisely the same trends as are projected for the enterprise as a whole. Different types of institutions are likely to experience different patterns of growth. Even as the new characteristics of students may cause some institutions to close in the next two decades, those changes could also give rise to new institutions or strengthen existing ones which are capable of meeting the needs and demands of these new students. Differences appear in the aggregate as well. For example, NCES projects that higher education enrollment will become, in the next decade,

---

22/ Bureau of the Census. Historical Statistics of the United States. Part 1. 1975, p. 383.

increasingly concentrated in public institutions (in 1975, 79.0 percent of total enrollment was in the public sector; by 1985, 82.9 percent may be in that sector), and in two-year institutions (in 1975, 34.6 percent of total enrollment was in those schools; by 1985, 42.9 percent may be.)[23/] Allan Cartter's work presents an argument against continued growth in the two-year college share of enrollment because four-year institutions may compete successfully with those schools for students.[24/] In either case, the continuation of current trends spells change as does reversal of those trends.

Influencing the outlook for individual schools are the diverse projections of the 18 year old freshman enrollment in 1985. Between 1975 and 1985, 12 States are expected to increase their 18 year old population; 9 are expected to lose between 1-10 percent of that age cohort; 19 are expected to lose between 11-20 percent; and, 11 are expected to lose over 20 percent. Projections to 1985 of the number of 18 year olds who will enroll in colleges as freshmen by State reveal that 6 States could increase their 18 year old freshmen enrollment because their number of 18 year olds is expected to increase and they are likely to be net importers of freshmen. One State may increase its 18 year old freshmen enrollment over that period because it attracts enough out-of-State students to compensate for its population loss. The other States may either remain relatively stable or lose 18 year old enrollment.[25/]

23/ NCES. Projections. Tables 6, 7 and 8.
24/ Cartter. Ph.D.'s. Table 4-15.
25/ Cathy Henderson. Changes in Enrollment by 1985. American Council on Education. Policy Analysis Service Reports. June 1977.

Thus, there is no single projection of enrollment which describes the possible future for every institution. Demographic data indicates that an institution which expects to survive this period, unless it has access to a growing or stable pool of 18-21 year olds, will have to improve its ability to attract individuals from a shrinking 18-21 year old market, expand its tapping of other age groups as sources of students, or learn to live with fewer students, or all three. Institutions are likely to find themselves competing with other institutions for students, employing new marketing techniques, and implementing academic innovations.

They are likely to find that simply keeping enrollments up is not enough, primarily because to do so they may have to enroll large numbers of nontraditional students. The literature on older students, and other non-traditional college-goers indicates that they have different kinds of needs and wants which enrolling institutions will have to address in order to attract and enroll these students.[26/]

In the final analysis, many institutions will probably find themselves fighting the battle between (1) maintaining traditional methods and traditional missions which are often closely identified with the basic purposes of their existence; and (2) instituting changes which may constitute substantial redirection of those basic purposes, or which appear to do so.

26/ For example, the American Council on Education's study entitled Financing Part-Time Students: The New Majority in Postsecondary Education (1974) concluded that part-time students tend to enroll for several different reasons from those which motivate traditional full-time students.

The projections of changes in enrollment do not give individual institutions much more than a warning that planning and analysis are in order. Public policymakers, on the other hand, can anticipate some specific policy options they are likely to have to consider in the next decade or so. These policy options are not unprecedented but may take on new dimensions as a result of enrollment shifts. During the 1980s and 1990s, pressure may mount for (1) direct institutional financial support to enable some institutions to meet the needs of new students being enrolled and/or to enable other institutions to survive which are incapable of adapting to the enrollment changes; and (2) new or altered student assistance programs to reduce the financial barriers for non-traditional students.

Debate over public policy toward higher education is likely to generate two issues -- to what extent should the higher education system be allowed to reach its own equilibrium as changes in student population occur; and what are the appropriate roles of the various levels of government.

There are those who would argue that, because there is a market mechanism at work in higher education (see discussion below), the system in the 1980s and 1990s should be left alone and forced to respond to enrollment changes. Institutional mortality thus would be seen as a natural and not necessarily undesirable consequence. Those institutions which cannot adapt to the demands of the future should not be artificially supported through public funding.

Others would argue that enrollment changes carry with them the potential for serious weakening of the capacity of the higher education system to

provide quality education to all those who need it. Some institutions may be too important to become pawns in a competition for students. The working of the market place and the possibly sharp downturn in students would not result, if left alone, in an orderly and efficient adjustment to the new circumstances.

It is not clear how the different levels of government will respond to the demands emanating from higher education as enrollments change. The present roles of the Federal, State and local governments in higher education may be modified in the future. Currently, the Federal Government provides approximately 17 percent of the revenue of institutions of higher education, State governments provide 30 percent and local governments 4 percent. But over 75 percent of Federal funding for higher education is in the form of student aid, while State and local governments' spending is more likely to be directed to basic institutional support.[27/] Our main interest in the following discussion is the different policy options Federal officials may have to consider. Nevertheless, it should be kept in mind that debate over Federal higher education policy will necessarily involve an assessment of what the role of State and local governments will or should be. Some of the issues discussed below may be seen at the time as more properly State or local concerns, requiring little or no Federal action.

The needs of students in the 1980s and 1990s may elicit new or modified Federal programs of student aid as well as institutional aid. It is presently

---

27/ NCES. Digest of Education Statistics. 1976 edition, p. 132.

argued that the focus on student aid in Federal higher education spending is intended to support a higher education marketplace in which students, acting as consumers, have a range of choices to make among a variety of institutions. If existing Federal student aid programs evolve as they have in the past, they could continue to serve the direct financial needs of students in the future. The levels of assistance and the ways of measuring needs and determining eligibility have all undergone modification in the past and may do so in the future.

But, the 1980s and 1990s may call for increased concern about whether institutions have the financial resources, the academic capacity and administrative flexibility necessary to offer choices. As we have discussed, because higher education institutions are dependent on enrollment, changes in the size and composition of that enrollment may adversely affect the prospects for some types of institutions. The focusing of Federal funds on students may increase the ability of individual students to make choices among institutions, but it may also increase the vulnerability of institutions to the predilections of students, potentially decreasing the capability of the system as a whole to meet the needs of all of its students. This may occur if certain types of institutions close due to enrollment losses. 28/

There is no Federal program currently providing general aid to all institutions of higher education. The exigencies of the late 1960s and early

---

28/ See the House of Representatives' Report No. 94-1086 to accompany H.R. 12851, Higher Education Amendments of 1976 (May 4, 1976) for a discussion of the marketplace concept and Federal funding (p. 4).

1970s did give rise to at least two programs intended to provide such general support. The Education Amendments of 1972 established a program of "Emergency Assistance for Institutions of Higher Education" (P.L. 92-318, Section 122) to provide financial assistance to schools in serious financial distress. Its appropriations authority ended June 30, 1974. The Amendments also added, to the Higher Education Act of 1965, a new program of general financial assistance to undergraduate schools based on their enrollment of federally-assisted students and to graduate schools based on their enrollment (P.L. 92-318, Section 1001). Neither of these programs has been funded. It is possible that if the Carnegie forecast of institutional mortality (10 percent of institutions) begins to be realized, similar programs will be established and, perhaps, funded.[29/] The experiences of the early 1970s may restrict such activities because predictions at that time of extensive institutional failures were not justified.

It is not only issues concerning institutional survival which these projections help to highlight. Issues affecting the admissions process and the role of the academic institution in our society also arise from a consideration of enrollment projections. We have chosen to focus briefly below on one such issue, equal educational opportunity, because it is topical and because it is central to the Federal involvement in higher education.[30/]

29/ Carnegie. More than Survival, p. 4.
30/ Congressional Budget Office. Postsecondary Education: The Current Federal Role and Alternative Approaches. February 1977.

We have discerned, in recent events and in the projections delineated in this paper, a set of circumstances which may develop and make equal education opportunity at the graduate and professional education level particularly difficult to achieve, at least as it is currently measured. The degree to which equal educational opportunity has been achieved frequently has been described in terms of the change in representation of under-represented groups in student bodies, in faculties, and in the various professions. Increases in that representation could become more problematic in the future.[31/]

In the future members of under-represented groups may be more likely to encounter (1) increased competition for places in graduate and professional schools, (2) efforts to limit programs designed to increase their representation in those schools, (3) declining numbers of places in some academic programs, and (4) saturated job markets in some fields. Enrollment levels are likely to have a role in the development of these constraints on the increased participation of specific groups in graduate and professional education, and in professional career positions.

If undergraduate enrollments fall and the academic job market tightens still further as a result, the sensitivity of potential Ph.D

31/ Some might argue that enrollment changes are unlikely to affect educational opportunity as negatively as a decision striking down the University of California's affirmative admissions program in the Bakke case recently argued before the Supreme Court (Allan Bakke v. The Regents of the University of California). It should be noted that the literature on the case reveals no consensus about the impact of any of the ways it is anticipated the Supreme Court might decide.

candidates to market conditions might be heightened, leading some to turn to fields of study with the best employment prospects. Competition for places in some academic programs would then increase. It is also possible that this trend will be exacerbated by the closing of graduate programs in certain fields for which the post-graduate job prospects are bleak and in which enrollments are declining.[32/] As places in certain programs become more valued, the selection procedures used to fill those places might well be more closely scrutinized and challenged.

In poorly subscribed programs, the need for students could result in more forceful efforts to recruit individuals from under-represented groups. Whether such efforts would further equal opportunity is open to question, particularly if one measures it in terms of ultimate representation in career positions. Although schools would be accessible to these students there may be no jobs waiting for graduates.

Depending upon the decision in the Bakke case and other similar cases which may arise, the Federal Government could continue its present affirmative action policies. But, it is also possible that, to increase the participation of under-represented groups, the opening of enrollment to these groups might not be sufficient, or possible, under a Bakke decision. The expansion of academic programs might be called for, along with efforts to improve the job prospects in certain fields for these groups.

32/ See the article by Edward B. Fiske entitled "Doctoral Studies Spark State U. Dispute (New York Times, February 4, 1976) for a discussion of such closings in New York.

CONCLUSION

Demographic changes, such as the decline in the number of 18-21 year olds in the next two decades, constitute only one of the forces influencing higher education enrollments. As a result of an incomplete understanding of what these forces are and how they interact to create a demand for higher education, projections of enrollments describe many different futures. Demographically-based enrollment projections alert us to the potential influence of population changes. But, as Allan Cartter wrote, "In a meaningful sense, successful projections may be those that turn out to be poor predictions of actual events."[33/] Responses by policymakers and institutional planners to projections may so affect enrollment rates and institutional capacities that none of the projections will be realized, including the projected decline in the 1980s.

33/ Allan Cartter. "The Academic Labor Market" in Higher Education and the Labor Market. The Carnegie Commission on Higher Education. 1974, p. 282.